

REMARKS

Claims 9 and 15-18 are pending in this application. Independent claim 9 has been amended to recite that “the vacuum tube is indirectly resiliently connected to the manifold by means of the prestressed heat-conducting elements and the fluid-conducting pipe system” (emphasis added). No new matter has been added.

Claims 9 and 15-18 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. Specifically, the Examiner objects to the term “distributor frame” as not being appropriate to label the feature to which it is directed. Applicant has taken the Examiner’s suggestion and amended independent claim 9 to recite a “manifold” instead of a “distributor frame”.

The Examiner also notes that the limitation “wherein the vacuum tube is resiliently connected to the distributor frame” is unclear because the vacuum tube is indirectly resiliently connected to the distributor frame. Independent claim 9 has been amended to recite the limitation “wherein the vacuum tube is indirectly resiliently connected to the ~~distributor frame~~ manifold”.

Applicant asserts that amended independent claim 9 is no longer indefinite and respectfully requests reconsideration and withdrawal of the rejection of this claim and claims 15-18 which depend therefrom.

Claims 9 and 15-18 stand rejected under 35 U.S.C. §103(a) as being obvious over United States Patent No. 4,440,156 to Takeuchi et al. (hereinafter “Takeuchi”), in view of German Patent Application Publication No. DE 19859658 to Helmut et al. (hereinafter “Helmut”), and United States Patent No. 6,619,283 to Ghela (hereinafter “Ghela”). Takeuchi is asserted to teach most of the limitations of independent claim 9 except a plurality of heat exchangers, a spiral shaped heat-conducting element, a fluid-conducting pipe system centered concentric to the vacuum tube, and attachment of the heat-conducting element to the outer wall of the fluid-conducting pipe system. The first missing limitation is asserted to be well-known. Helmut is asserted to teach the next two missing limitations and Ghela is asserted to teach the last missing limitation. Resilient attachment of the vacuum tube to the distributor frame via the prestressed heat-conducting element is asserted to be inherent in the combination of Takeuchi

and Helmut and the extension of the heat-conducting element to cover a 450° angle is deemed to be obvious in order to increase the efficiency of the heat exchanger.

Amended independent claim 9 recites, *inter alia*, “wherein the vacuum tube is indirectly resiliently connected to the manifold by means of the prestressed heat-conducting elements and the fluid-conducting pipe system” (emphasis added). As can be seen in Fig. 3 of the present application, the vacuum tube 3 is separate from and not directly connected to the manifold 11. Instead, it is only indirectly connected to the manifold by means of the interference fit of the prestressed heat-conducting elements between the vacuum tube and the fluid-conducting pipe system. It is not connected directly or indirectly to the manifold by any other means. Independent claim 9 has been amended to recite “by means of the prestressed heat-conducting elements and the fluid-conducting pipe system” instead of “via the prestressed heat-conducting elements and the fluid-conducting pipe system” to make the clear distinction that it is the prestressed heat-conducting elements and the fluid-conducting pipe system that connect and attach the vacuum tube to the manifold. Applicant asserts that Takeuchi, Helmut, and Ghela, alone or in combination, do not teach or suggest this limitation either directly or inherently.

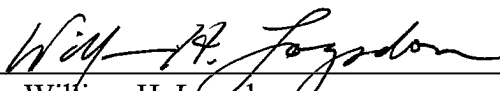
Takeuchi is directed to a collector tube and does not address how the collector tube is attached to a frame or manifold. This is evident by the statements in Takeuchi that: (1) for the known prior art arrangements discussed in the Background of the Invention, transfer of the solar heat collected to the metal pipe “is of vital importance. However, to date, an ideal solution to such a problem has not yet been uncovered.” (col. 1, lines 22-25) and (2) “The present invention has for its main object to improve the efficiency of transmission of heat to a metal pipe for circulation of fluid media wherein the metal pipe is disposed within the glass tubing of a solar heat collector.” (col. 1, lines 28-32). This indicates that the invention of Takeuchi is an improvement in the heat conduction of the prior art and that other features of the invention would be the same as the prior art. Therefore, in the heat exchanger based on the combination of Takeuchi and Helmut suggested by the Examiner, the attachment of the vacuum tube according to the limitation of amended independent claim 9 would have to be taught or suggested by Helmut or some other piece of prior art.

In Helmut, as can be seen in Fig. 1, the vacuum tube 2 is connected to the lid 5 by the seals 4, and the lid 5 is connected to a manifold by fastener 10. Thus, the vacuum tube 2 is connected to the manifold by means of the seals 4, lid 5 and fastener 10, not by means of the prestressed heat-conducting elements 3 and the fluid-conducting pipe system 8, 9 as required by claim 9. Helmut does not teach or suggest that the vacuum tube would be connected to the manifold, directly or indirectly, absent the connection formed by the seals, lid and fastener, or that it is or could be connected to the frame by means of the prestressed heat-conducting elements and the fluid-conducting pipe system.

Thus, Takeuchi and Helmut, alone or in combination, do not teach or suggest indirectly resiliently connecting the vacuum tube to the manifold by means of the prestressed heat-conducting elements and the fluid-conducting pipe system as required by claim 9 and, thus do not render the claim obvious. Ghela, which is asserted merely to teach the attachment of the heat-conducting element to the outer wall of the fluid-conducting pipe system, does not remedy this deficiency in Takeuchi and Helmut. Claims 15-18, which depend from claim 9 and further define the invention, are also not obvious for at least the same reasons.

Based on the foregoing amendments and remarks, reconsideration of the rejections and allowance of claims 9 and 15-18 are respectfully requested.

Respectfully submitted,
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